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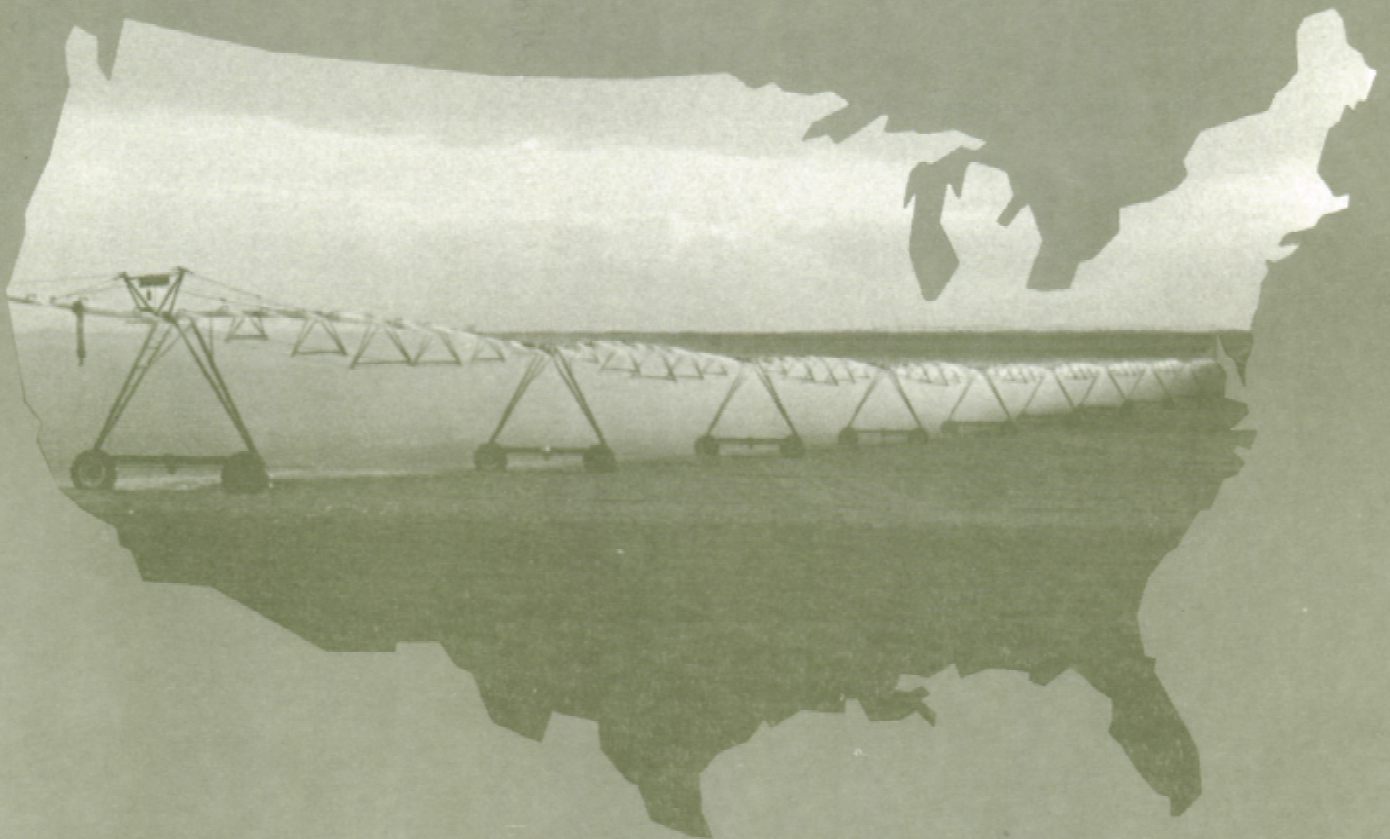
United States
Department of
Agriculture

Economic
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Agricultural
Economic
Report
Number 593

Characteristics of Irrigated Agriculture in the United States

John J. Hanchar



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ABSTRACT

Previously unreported data obtained from special tabulations of the 1982 Census of Agriculture show that more than 30 percent of irrigated farms were livestock operations in 1982. Individual or family operations represented the vast majority of irrigated farms. Thirty-six percent of irrigated farms had fewer than 50 acres, while 34 percent generated less than \$10,000 per farm in sales of agricultural products. Corporate and larger farms accounted for disproportionately large shares of the irrigated acreage and sales of agricultural products, compared with their share of farms. Although there were regional differences in farm operations, farm operator characteristics were similar among regions.

Keywords: Irrigated farms, irrigated acres, agricultural product sales value, irrigation water

ACKNOWLEDGMENTS

The author acknowledges the helpful suggestions provided by John Hostetler, Gordon Sloggett, Ralph Heimlich, and Clifford Dickason. The author thanks Teri Davis for editorial assistance and Lucille Milligan for manuscript preparation.

SUMMARY

This report describes U.S. irrigated farms and their operators, using previously unreported data obtained from special tabulations of the 1982 Census of Agriculture. More than 30 percent of irrigated farms were livestock operations in 1982. Individual or family operations represented the vast majority of irrigated farms. Thirty-six percent of U.S. irrigated farms had fewer than 50 acres, while 34 percent generated less than \$10,000 per farm in agricultural product sales. Corporate farms and larger farms accounted for larger shares of irrigated acres and sales compared with their share of farms. Although there were regional differences in farm operations, farm operator characteristics were similar among regions.

Approximately 31 percent of the Nation's 277,713 irrigated farms were classified as livestock farms, while 21 percent and 19 percent were classified as cash grain and fruit and tree nut farms. Irrigated fruit and tree nut farms were more prevalent in the Pacific region and in Florida, Arkansas, and Louisiana; while livestock operations were more numerous in the Mountain region. Many irrigated farms in the Northern Plains region were classified as cash grain farms, and most irrigated farms in all other States grew primarily field crops except cash grains.

Most (79 percent) irrigated farms in the United States were organized as individual or family operations, while 12 percent and 8 percent were partnerships and corporations. Thirty-nine percent of the agricultural product sales value was generated by the 8 percent of irrigated farms classified as corporations. Family-held corporations dominated corporate irrigated agriculture, including irrigated farms, irrigated acreage, and agricultural product sales from irrigated farms. Concentration of sales was most pronounced in the Pacific region, where corporate irrigated farms accounted for 7 percent of the region's irrigated farms but 41 percent of the region's sales from irrigated farms.

Thirty-six percent of U.S. irrigated farms had fewer than 50 acres of land. The majority of irrigated farms in the Pacific region had fewer than 50 acres, while larger irrigated farms were more numerous in the Northern Plains region. The 7 percent of U.S. irrigated farms with 2,000 or more acres accounted for 32 percent of the agricultural product sales from U.S. irrigated farms. In the Pacific region, the largest farms made up 3 percent of the region's irrigated farms and contributed 29 percent of the region's agricultural product sales from irrigated farms. U.S. irrigated farms with \$500,000 or more of sales accounted for 55 percent of agricultural product sales, but they accounted for only 5 percent of irrigated farms.

Characteristics of operators of irrigated farms were uniform across regions. Farming was the principal occupation for most of them, and almost half were between 45 and 64 years of age. The majority resided on the farm that they operated, and almost half had been on their present farm for 10 or more years.

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Characteristics of Irrigated Agriculture in the United States

John J. Hanchar

INTRODUCTION

The value of agricultural products sold from irrigated farms was \$39.7 billion in 1982, and represented approximately 30 percent of total sales from U.S. farms. Irrigated farms accounted for \$26.6 billion, or 43 percent of the Nation's farm sales of crops, including nursery and greenhouse products. In addition, the irrigated sector accounted for \$13.1 billion of the nearly \$70 billion of livestock, poultry, and their products sold (9).^{1/}

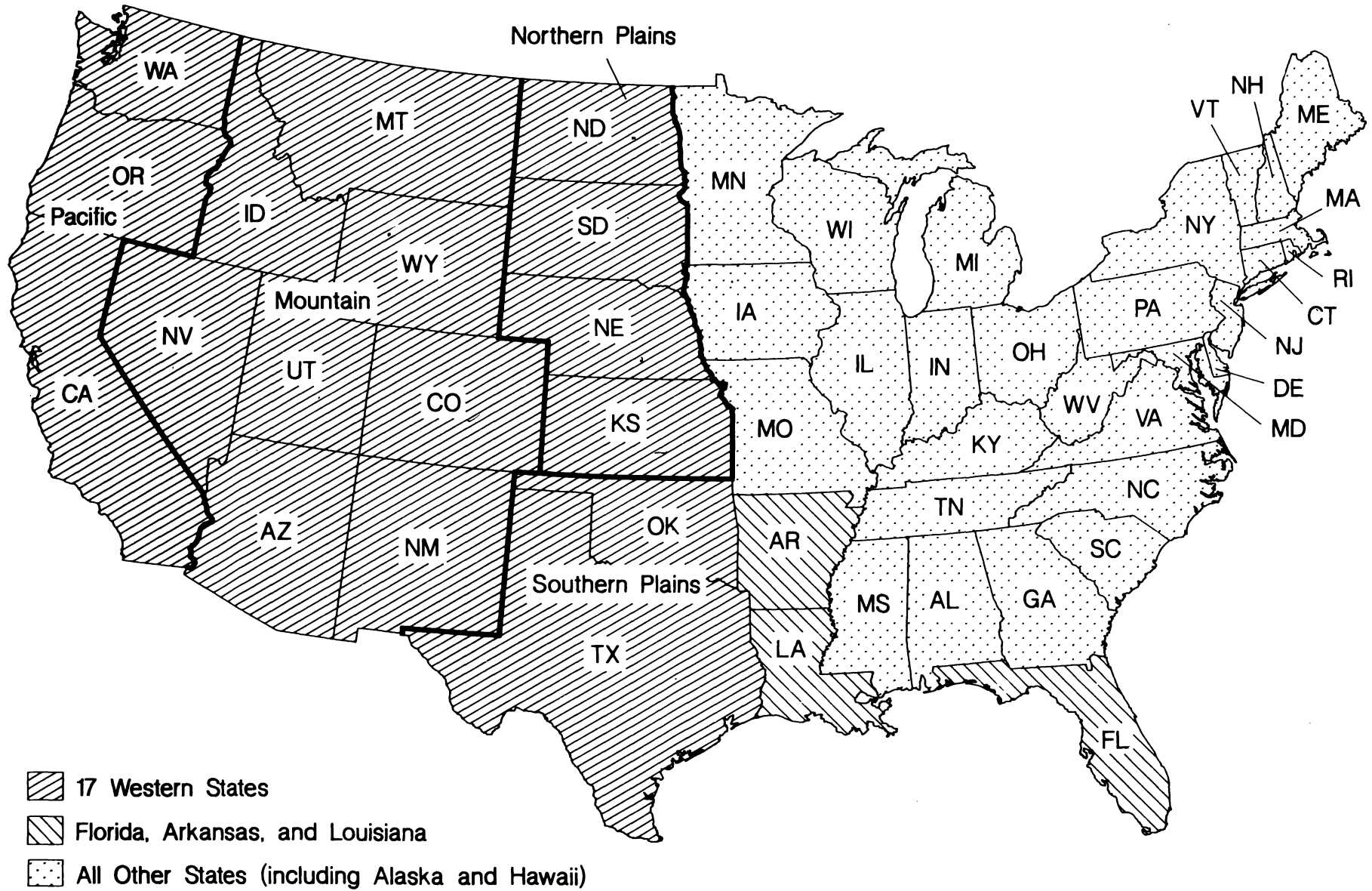
A primary use of U.S. water resources is for irrigation. About 34 percent of offstream water withdrawals are used for irrigation, according to the 1980 U.S. Geological Survey (8). Approximately 81 percent of all fresh water removed from the water environment is consumed for irrigation. Consumption of water occurs when water is evaporated, transpired, incorporated into products or crops, consumed by man or livestock, or otherwise removed from the water environment.

Policy designed to influence the performance of the irrigated sector may benefit from a better understanding of the sector's structure and characteristics, considering the underlying premise that some relationship exists between industry structure, conduct, and performance (1, 3). For example, structural information such as the number of irrigated farms and their size distribution may aid policymakers concerned about the use of water resources in irrigating land for crop production and, more specifically, about water use in different forms of agriculture.

Recent USDA reports have updated trends and have presented selected information using available data sources (2, 4). This report profiles irrigated agriculture using data from a special tabulation of the 1982 Census of Agriculture, and provides a foundation for studies of the structure and performance of the irrigated sector (10). Previously unreported data on the number of irrigated farms, irrigated acreage, and agricultural product sales value from irrigated farms are presented for a variety of farm operation and operator characteristics by region. (See map for regional groupings.)

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^{1/} Underscored numbers in parentheses refer to sources cited in the References section.



METHODOLOGY

Coefficients compare regional distributions with national distributions for characteristics such as type of farm or principal source of irrigation water (5, 6, and 7). A second use of the coefficient is to compare a region's distribution of irrigated acres or agricultural product sales value from irrigated farms with the region's distribution of irrigated farms by characteristic. The coefficient values range from zero to one. The greater the value, the greater the deviation between the two distributions. A zero value indicates that there is no deviation between the two distributions. For the first use of the coefficient, a set of small coefficients for the regions implies that the characteristic being examined (such as type of organization or farm size) is uniform throughout the irrigated sector. The second use of the coefficient reveals whether irrigated acres or sales are concentrated in farms with a specific characteristic. Concentration occurs when farms with a specific characteristic account for disproportionate shares of acres or sales, compared with their share of the number of farms. The larger the coefficient, the greater the deviation between distributions of acres or sales and the number of farms, and the greater the concentration.

In this report, values less than 0.25 indicate slight deviation; values greater than or equal to 0.25 and less than 0.5 indicate moderate deviation; values greater than or equal to 0.5 and less than 0.75 indicate considerable deviation; and values greater than or equal to 0.75 indicate extreme deviation. The appendix contains an example of how the coefficient is calculated.

IRRIGATED FARM OPERATIONS

This section summarizes the characteristics of irrigated farm operations. These characteristics include type of farm, size of farm, and principal source of irrigation water.

Type of Farm

The type of farm is described in terms of the number of irrigated farms by Standard Industrial Classification (SIC), a code used to classify farms by the type of enterprise; the irrigated acres harvested, by crop; and the value of agricultural products sold, by product. Regional distributions by type of organization and the number of irrigated farms by tenure of operator are also used to describe farm types.

Type of Enterprise

Approximately 31 percent of the Nation's 277,713 irrigated farms in the 1982 census were classified as livestock farms, while 21 percent and 19 percent were classified as cash grain and fruit and tree nut farms (table 1). 2/ Regional distributions for the type of farm generally deviated moderately from

2/ The 277,713 irrigated farms reported excludes 564 farms defined as abnormal by the Bureau of Census in 1982. These included institutional farms, experimental and research farms, and Indian reservations. Institutional farms include those operated by hospitals, penitentiaries, churches, schools, grazing associations, Government agencies, and other similar institutions.

the U.S. distribution. Exceptions were the Southern Plains, which deviated slightly, and the Northern Plains, which deviated considerably and had a majority of farms that were classified as cash grain operations.

Irrigated cash grain farms were the largest SIC category in the Northern Plains, Southern Plains, and Florida-Arkansas-Louisiana regions. In contrast, livestock and field crop farms, except cash grain farms, were the largest SIC category for irrigated farms in the Mountain and All Other States regions. Livestock operations with irrigated acreage were also quite prevalent in the other western regions. Irrigated fruit and tree nut farms in the Pacific region accounted for more than 14 percent of all irrigated farms.

Irrigated Harvested Acres, by Crops Harvested

Grain was harvested from about 53 percent of the Nation's 44.5 million irrigated harvested acres, while hay, silage, and field seed as a group, and other crops were harvested from another 22 percent and 12 percent of this

Table 1—Distribution of irrigated farms by type of enterprise and by region

Region and coefficient value 2/	Unit	Type of enterprise 1/								All irrigated farms
		Cash grain	Field crop except cash grain	Vegetable including melon	Fruit and tree nut	Horticultural specialty	General farm, primarily crop	Livestock 3/	General farm, primarily livestock	
Pacific (.34)	Number Percent	5,263 5.9	8,233 9.2	4,070 4.5	39,427 43.9	3,767 4.2	2,349 2.6	26,374 29.3	391 0.4	89,874 100.0
Mountain (.34)	No. Pct	10,109 14.1	13,559 18.9	1,186 1.7	2,923 4.1	871 1.2	4,153 5.8	37,892 52.9	877 1.2	71,570 100.0
Northern Plains (.56)	No. Pct	19,988 62.5	769 2.4	108 .3	64 .2	204 .6	690 2.2	9,836 30.8	326 1.0	31,985 100.0
Southern Plains (.24)	No. Pct	7,246 31.8	5,117 22.4	853 3.7	2,021 8.9	877 3.8	1,162 5.1	5,451 23.9	74 .3	22,801 100.0
Total, 17 Western States (.09)	No. Pct	42,606 19.7	27,678 12.8	6,217 2.9	44,435 20.5	5,719 2.6	8,354 3.9	79,553 36.8	1,668 .8	216,230 100.0
FL-AR-LA (.06)	No. Pct	8,305 39.8	1,224 5.9	1,438 6.9	4,924 23.6	2,940 14.1	203 1.0	1,803 8.6	35 .2	20,872 100.0
Total, 20 principal irrigation States (.06)	No. Pct	50,911 21.5	28,902 12.2	7,655 3.2	49,359 20.8	8,659 3.7	8,557 3.6	81,356 34.3	1,703 .7	237,102 100.0
All Other States (.38)	No. Pct	7,377 18.2	9,762 24.0	4,607 11.3	3,824 9.4	7,234 17.8	1,962 4.8	5,529 13.6	316 .8	40,611 100.0
United States 4/	No. Pct	58,288 21.0	38,664 13.9	12,262 4.4	53,183 19.2	15,893 5.7	10,519 3.8	86,885 31.3	2,019 .7	277,713 100.0

1/ By SIC code, see (9) p. A-8 for descriptions.

2/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions.

3/ All livestock including dairy, poultry and egg, and animal specialty.

4/ United States has no coefficient value because regional coefficients are based on U.S. data distributions.

acreage (table 2). Irrigated harvested acres by crop in the All Other States region were distributed most similarly to those for the United States, although grains were harvested from a larger percentage of irrigated harvested acres when compared with the U.S. total. Irrigated harvested acres by crop were distributed most differently in the Northern Plains, where grains were

Table 2—Distribution of irrigated harvested acres by crops harvested and by region

Region and coefficient value <u>1/</u>	Unit	Crops harvested					Total irrigated harvested acres
		Grains <u>2/</u>	Other crops <u>3/</u>	Hay, silage, fieldseed	Vegetables	Fruits, tree nuts, berries	
Pacific (.32)	Acres Percent	3,012,688 28.1	1,693,251 15.8	2,551,791 23.8	1,110,098 10.4	2,338,814 21.8	10,706,642 100.0
Mountain (.33)	Acres Pct	4,213,367 36.8	1,281,133 11.2	5,667,998 49.5	160,612 1.4	132,092 1.2	11,455,202 100.0
Northern Plains (.37)	Acres Pct	7,979,164 87.3	80,473 .9	1,074,945 11.8	2,372 0	884 0	9,137,838 100.0
Southern Plains (.30)	Acres Pct	3,697,460 63.5	1,501,931 25.8	336,967 5.8	162,395 2.8	122,724 2.1	5,821,477 100.0
Total, 17 Western States (.05)	Acres Pct	18,902,679 50.9	4,556,788 12.3	9,631,701 25.9	1,435,477 3.9	2,594,514 7.0	37,121,159 100.0
FL-AR-LA (.31)	Acres Pct	2,672,926 66.2	365,559 9.1	54,090 1.3	255,687 6.3	688,603 17.1	4,036,865 100.0
Total, 20 principal irrigation States (.02)	Acres Pct	21,575,605 52.4	4,922,347 12.0	9,685,791 23.5	1,691,164 4.1	3,283,117 8.0	41,158,024 100.0
All Other States (.25)	Acres Pct	2,170,602 65.7	518,063 15.7	134,402 4.1	330,778 10.0	150,732 4.6	3,304,577 100.0
United States <u>4/</u>	Acres Pct	3,746,207 53.4	5,440,410 12.2	9,820,193 22.1	2,021,942 4.5	3,433,849 7.7	44,462,601 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions.

2/ Includes corn or sorghum for grain or seed; wheat, barley, oats, or rye for grain; flaxseed, rice, sunflower seed, soybeans for beans, and dry edible beans, excluding limas.

3/ Including cotton, tobacco, Irish potatoes, sweet potatoes, sugar beets or sugarcane for sugar, and peanuts for nuts.

4/ United States has no coefficient value because regional coefficients are based on U.S. data distributions.

harvested from 87 percent of the irrigated harvested acres. The irrigated acres from which grains were harvested in the Northern Plains accounted for 18 percent of the Nation's irrigated harvested acres. Grains were harvested from the largest percentage of irrigated harvested acres in all regions except the Mountain region, where hay, silage, and field seed were harvested from 49 percent of the irrigated harvested acres. The amount of irrigated cash grain and hay, silage, and field seed acres harvested in the Western States coincides with their large number of livestock operations with irrigated acreage.

Value of Agricultural Products Sold, by Product

Livestock products accounted for about a third of the \$39.6 billion of agricultural products sold by the Nation's irrigated farms (table 3). Grains, and fruit, tree nuts, and berries as a group accounted for 21 percent and 13 percent of U.S. agricultural products sold from irrigated farms. Agricultural

Table 3—Distribution of sales from U.S. irrigated farms by agricultural products sold and by region

Region and coefficient value ^{1/}	Agricultural products sold								Total sales
	Unit	Grains ^{2/}	Other crops ^{3/}	Hay, silage, fieldseed	Vegetables	Fruit, tree nuts, berries	Nursery, greenhouse	Livestock products	
Pacific (.28)	\$1,000 Percent	1,187,359 9.0	1,584,364 12.0	604,047 4.6	1,972,945 15.0	3,517,050 26.7	1,142,991 8.7	3,180,930 24.1	13,189,686 100.0
Mountain (.32)	\$1,000 Pet	1,125,848 17.0	992,968 15.0	451,566 6.8	313,774 4.7	133,688 2.0	151,860 2.3	3,464,091 52.2	6,633,795 100.0
Northern Plains (.44)	\$1,000 Pet	2,431,619 38.0	57,029 .9	117,343 1.8	2,818 0	620 0	33,358 .5	3,747,861 58.6	6,390,648 100.0
Southern Plains (.21)	\$1,000 Pet	1,026,883 31.4	485,281 14.8	54,650 1.7	230,294 7.0	90,098 2.8	196,213 6.0	1,187,487 36.3	3,270,906 100.0
Total, 17 Western States (.10)	\$1,000 Pet	5,771,709 19.6	3,119,642 10.6	1,227,606 4.2	2,519,831 8.5	3,741,456 12.7	1,524,422 5.2	11,580,369 39.3	29,485,035 100.0
FL-AR-LA (.34)	\$1,000 Pet	1,250,439 31.6	444,886 11.2	7,867 .2	560,831 14.2	892,102 22.5	498,119 12.6	306,286 7.7	3,960,530 100.0
Total, 20 principal irrigation States (.06)	\$1,000 Pet	7,022,148 21.0	3,564,528 10.7	1,235,473 3.7	3,080,662 9.2	4,633,558 13.9	2,022,541 6.0	11,886,655 35.5	33,445,565 100.0
All Other States (.32)	\$1,000 Pet	1,421,516 23.3	1,223,905 20.0	22,444 .4	480,920 7.9	483,386 7.9	1,407,514 23.0	1,069,621 17.5	6,109,306 100.0
United States ^{4/}	\$1,000 Pet	8,443,664 21.3	4,788,433 12.1	1,257,917 3.2	3,561,582 9.0	5,116,944 12.9	3,430,055 8.7	12,956,276 32.8	39,554,871 100.0

^{1/} Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions.

^{2/} Including corn or sorghum for grain, oats, wheat, soybeans, and other grains as defined in (2) on p. A-7.

^{3/} Including cotton and cottonseed, tobacco, and other crops from (2), Summary Tables, "Market value of agricultural products sold."

^{4/} United States has no coefficient value because regional coefficients are based on U.S. data distributions.

product sales in the Southern Plains region were most similar to the distribution for the United States. Agricultural product sales in the Northern Plains deviated the most, with almost 60 percent of sales attributed to livestock products. Livestock products accounted for the largest percentage of sales in the Mountain, Northern Plains, and Southern Plains regions. Fruit, tree nuts, and berries as a group, and grains accounted for the largest share of sales in the Pacific and Florida-Arkansas-Louisiana regions, while sales of grains and nursery and greenhouse products accounted for the largest shares in the All Other States region.

Type of Organization

The vast majority, 79 percent, of irrigated farms in the United States were organized as individual or family (sole proprietorship) operations, while 12 percent and 8 percent were partnerships or corporations (table 4). Less than 1 percent of farms were other-than-family-held corporations. The number of farms with irrigated acreage, the amount of irrigated acreage, and the associated agricultural product sales value are presented to describe organization types.

Number of Irrigated Farms. Distributions for the regions were very similar to that for the United States. Less than 8 percent of irrigated farms in each of the four western regions were classified as corporations, as were 14 percent of irrigated farms in the Florida-Arkansas-Louisiana region and 11 percent of irrigated farms in the All Other States region. The Florida-Arkansas-Louisiana region had the largest percentage of irrigated farms in other-than-family-held corporations, with more than twice the share reported by the United States and by every other region except the All Other States region.

Irrigated Acreage. Most irrigated acreage in the United States was on farms organized as individual or family operations (table 5). Irrigated farms operated by individuals or families and partnerships accounted for approximately 57 percent and 19 percent of the Nation's irrigated acreage. Distributions for the individual regions were only slightly different from the U.S. distribution of irrigated acreage. Less than half of the irrigated acreage in the Pacific region was in individual or family farm operations.

Irrigated acres by type of organization in the United States and the regions, except the Pacific and the Florida-Arkansas-Louisiana regions, were distributed in a manner similar to distributions of the number of farms. The distribution data indicate that partnerships and corporations accounted for larger percentages of irrigated acres than of farms, implying that irrigated acres were slightly concentrated in these farm structures compared with the distribution of the number of farms.

Concentration was most evident in the Pacific region, where the largest deviation between the distribution of irrigated acres and the distribution of the number of farms existed. The tendency for partnerships and corporate farms to account for a disproportionately large share of irrigated acres, compared with the number of farms, was most pronounced in this region. Individual and family farms in the Pacific region accounted for 79 percent of farms but only 43 percent of irrigated acres. In contrast, partnerships and corporations accounted for 13 percent and 7 percent of farms but 25 percent and 31 percent of irrigated acres. Although corporate irrigated farms were

not widespread in the Pacific region, they accounted for a large share of irrigated acres, compared with the number of farms.

Value of Agricultural Products Sold. Irrigated farms operated by individuals or families and corporations accounted for similar shares of agricultural

Table 4—Distribution of irrigated farm numbers by type of organization and by region

Region and coefficient value <u>1/</u>	Type of organization							All irrigated farms
	Unit	Individ- ual or family	Partner- ship	Corporation			Other	
				Total	Family- held	Other- than- family- held		
Pacific (.02)	Number Percent	70,937 78.9	11,988 13.3	6,319 7.0	5,452 6.1	867 1.0	630 0.7	89,874 100.0
Mountain (.03)	No. Pct	58,378 81.6	7,779 10.9	4,721 6.6	4,288 6.0	433 .6	692 1.0	71,570 100.0
Northern Plains (.02)	No. Pct	25,647 80.2	3,657 11.4	2,540 7.9	2,385 7.5	155 .5	141 .4	31,985 100.0
Southern Plains (.03)	No. Pct	18,690 82.0	2,668 11.7	1,302 5.7	1,107 4.9	195 .9	141 .6	22,801 100.0
Total, 17 Western States (.02)	No. Pct	173,652 80.3	26,092 12.1	14,882 6.9	13,232 6.1	1,650 .8	1,604 .7	216,230 100.0
FL-AR-LA (.08)	No. Pct	14,983 71.8	2,735 13.1	2,939 14.1	2,506 12.0	433 2.1	215 1.0	20,872 100.0
Total, 20 princi- pal irrigation States (.01)	No. Pct	188,635 79.6	28,827 12.2	17,821 7.5	15,738 6.6	2,083 .9	1,819 .8	237,102 100.0
All Other States (.05)	No. Pct	30,216 74.4	5,747 14.2	4,464 11.0	3,967 9.8	497 1.2	184 .5	40,611 100.0
United States <u>2/</u>	No. Pct	218,851 78.8	34,574 12.4	22,285 8.0	19,705 7.1	2,580 .9	2,003 .7	277,713 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions. Compared distributions include data for individual or family organizations, partnerships, family-held corporations, other-than-family-held corporations, and other organizations.

2/ United States has no coefficient value because regional coefficients are based on U.S. data distributions.

product sales (table 6). Individual or family farms accounted for 42 percent of the agricultural product sales from the Nation's irrigated farms, while corporate irrigated farms held a 39-percent sales share. The sales share from other-than-family-held corporate irrigated farms was approximately 9 percent. The regional distributions of agricultural product sales were similar to the U.S. distribution of agricultural product sales.

Distributions of agricultural product sales deviated moderately from distributions of the number of farms. Corporate irrigated farms in the United States accounted for 8 percent of irrigated farms, but 39 percent of

Table 5—Distribution of irrigated acres by type of organization and by region

Region and coefficient values <u>1/</u>	Unit	Type of organization						All irrigated acres
		Individual or family	Partnership	Corporation			Other	
				Total	Family-held	Other-than- family- held		
Pacific (.15, .39)	Acres Percent	5,049,245 42.5	3,001,696 25.3	3,725,882 31.4	2,968,386 25.0	757,496 6.4	93,632 0.8	11,870,455 100.0
Mountain (.03, .24)	Acres Pct	8,109,391 58.8	2,520,137 18.3	3,012,924 21.9	2,714,055 19.7	298,869 2.2	145,681 1.1	13,788,133 100.0
Northern Plains (.14, .12)	Acres Pct	6,404,487 69.3	1,343,317 14.5	1,444,388 15.6	1,369,483 14.8	74,905 .8	48,269 .5	9,240,461 100.0
Southern Plains (.14, .13)	Acres Pct	4,205,638 69.4	1,055,410 17.4	756,320 12.5	648,832 10.7	107,488 1.8	43,804 .7	6,061,172 100.0
Total, 17 Western States (.02, .24)	Acres Pct	23,768,761 58.0	7,920,560 19.3	8,939,514 21.8	7,700,756 18.8	1,238,758 3.0	331,386 .8	40,960,221 100.0
FL-AR-LA (.13, .27)	Acres Pct	2,021,307 47.3	742,750 17.4	1,471,950 34.4	1,078,860 25.2	393,090 9.2	40,125 .9	4,276,132 100.0
Total, 20 princi- pal irrigation States (.00, .24)	Acres Pct	25,790,068 57.0	8,663,310 19.2	10,411,464 23.0	8,779,616 19.4	1,631,848 3.6	371,511 .8	45,236,353 100.0
All Other States (.04, .22)	Acres Pct	1,846,954 54.1	634,951 18.6	902,741 26.5	711,261 20.8	191,480 5.6	26,730 .8	3,411,376 100.0
United States (<u>2/</u> , .24)	Acres Pct	27,637,022 56.8	9,298,261 19.1	11,314,205 23.3	9,490,877 19.5	1,823,328 3.7	398,241 .8	48,647,729 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distribution of irrigated acres and number of farms. Compared distributions include data for individual or family organizations, partnerships, family-held corporations, other-than-family-held corporations, and other organizations.

2/ United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

agricultural product sales from irrigated farms. A breakdown of corporate irrigated farms reveals that family-held corporate farms accounted for 7 percent of irrigated farms and 30 percent of agricultural product sales, while other-than-family-held corporate farms accounted for 1 percent of irrigated farms and 9 percent of agricultural product sales. The tendency for corporate farms to account for a disproportionately large share of agricultural product sales, compared with the small number of corporate irrigated farms, is most evident in the Far West and Southeastern United States. In the Pacific region, family-held corporate farms accounted for 6 percent of irrigated farms and 31 percent of agricultural product sales, while other corporate farms

Table 6—Distribution of sales from irrigated farms by type of organization and by region

Region and coefficient values <u>1/</u>	Type of organization							Sales from all irri- gated farms
	Unit	Individual or family	Partnership	Corporation			Other	
				Total	Family-held	Other-than- family- held		
Pacific (.08, .48)	\$1,000 Percent	4,615,142 35.0	3,139,880 23.8	5,358,089 40.6	4,135,577 31.4	1,222,513 9.3	76,573 0.6	13,189,687 100.0
Mountain (.06, .39)	\$1,000 Pct	3,049,798 46.0	1,198,311 18.1	2,330,003 35.1	1,959,622 29.5	370,380 5.6	55,684 .8	6,633,794 100.0
Northern Plains (.11, .33)	\$1,000 Pct	3,257,821 50.9	860,639 13.5	2,243,966 35.1	1,815,445 28.4	428,521 6.7	32,285 .5	6,394,711 100.0
Southern Plains (.12, .37)	\$1,000 Pct	1,581,422 48.3	497,880 15.2	1,169,684 35.8	742,264 22.7	427,420 13.1	21,920 .7	3,270,905 100.0
Total, 17 Western States (.02, .42)	\$1,000 Pct	12,504,183 42.4	5,696,710 19.3	11,101,742 37.6	8,652,908 29.3	2,448,834 8.3	186,462 .6	29,489,097 100.0
FL-AR-LA (.13, .43)	\$1,000 Pct	1,385,707 35.0	568,740 14.4	1,961,116 49.5	1,314,697 33.2	646,419 16.3	45,122 1.1	3,960,685 100.0
Total, 20 princi- pal irrigation States (.00, .42)	\$1,000 Pct	13,889,890 41.5	6,265,450 18.7	13,062,858 39.1	9,967,605 29.8	3,095,253 9.3	231,584 .7	33,449,782 100.0
All Other States (.02, .37)	\$1,000 Pct	2,562,722 41.9	1,034,517 16.9	2,474,905 40.5	1,894,430 31.0	580,476 9.5	37,163 .6	6,109,307 100.0
United States (<u>2/</u> , .41)	\$1,000 Pct	16,452,612 41.6	7,299,969 18.5	15,537,763 39.3	11,862,034 30.0	3,675,729 9.3	268,747 .7	39,559,091 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distribution of sales value from irrigated farms and the number of farms. Compared distributions include data for individual or family organizations, partnerships, family-held corporations, other-than-family-held corporations, and other organizations.

2/ United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

accounted for 1 percent of irrigated farms and 9 percent of agricultural product sales. Similarly, in the Florida-Arkansas-Louisiana region, family-held corporate farms accounted for 12 percent of irrigated farms and 33 percent of agricultural product sales, while other corporate farms accounted for 2 percent of irrigated farms and 16 percent of agricultural product sales.

Irrigated Farms, by Tenure of Operator

Most irrigated farms in the United States (56 percent) were operated by full owners who operated only land that they owned (table 7). Part owners, who operated land that they owned and also land rented from others, and tenants, who operated only land that they rented from others or worked on land shares for others, accounted for 31 percent and 12 percent of U.S. irrigated farms. Regional distributions, except in the Northern Plains where part owners operated more than half the farms, deviated only slightly from the national distribution. The Pacific region reported the largest percentage of full owners.

Size of Farm

The total acres of land on the farm and the market value of agricultural products sold from the farm describe the size of irrigated farms.

Farm Acres

This section presents distributions of the number of irrigated farms, the acres of irrigated land, and the value of agricultural products sold.

Number of Irrigated Farms. Farms with fewer than 50 acres of land accounted for the largest percentage of irrigated farms (table 8). Thirty-six percent of U.S. irrigated farms were in the smallest farm size category (1-49 acres), while the remaining number of farms were nearly evenly divided among the remaining farm size categories. Distributions of the number of farms by farm size in all regions except the Pacific and Northern Plains were similar to the U.S. distribution. In the Pacific region, 69 percent of irrigated farms had fewer than 100 acres. The small size of irrigated farms in the Pacific region is explained by the fact that 44 percent of the irrigated farms in the region were classified as fruit and tree nut farms, which tend to be smaller than other types of farms (table 1). In contrast, cash grain farms, which tend to be larger, were more numerous in the Northern Plains region.

Irrigated Acres. Farms with 2,000 or more acres of land accounted for almost 36 percent of U.S. irrigated acres, the largest share of irrigated acres in the United States (table 9). The majority of irrigated acres were on farms with more than 1,000 acres. The regional distributions of irrigated acres among farm size categories differed only slightly from the distribution for the United States.

The distributions of irrigated acres by farm size differed markedly from the distributions of the number of farms by farm size. This was true for the United States and for the regions as well. At the national level, farms with fewer than 50 acres accounted for 36 percent of farms but only 2 percent of irrigated acres, while farms with 2,000 or more acres accounted for 7 percent of farms but 36 percent of irrigated acres. The degree of concentration was greatest in the Pacific region, where the coefficient value measuring the

deviation between the region's distributions of irrigated acres and the number of irrigated farms was 0.76. Thus, farms in the Pacific region with fewer than 50 acres accounted for 57 percent of the Pacific region's farms but only 5 percent of its irrigated acres.

Value of Agricultural Products Sold. Farms with 2,000 or more acres of land generated 32 percent of the agricultural product sales by irrigated farms, while farms with 1,000-1,999 acres accounted for 18 percent of these sales

Table 7--Distribution of irrigated farms by tenure of operator and by region

Region and coefficient value 1/	Unit	Tenure of operator			All irrigated farms
		Full owners	Part owners	Tenants	
Pacific (.16)	Number Percent	64,151 71.4	17,403 19.4	8,320 9.3	89,874 100.0
Mountain (.03)	No. Pct	41,772 58.4	22,708 31.7	7,090 9.9	71,570 100.0
Northern Plains (.28)	No. Pct	9,156 28.6	16,978 53.1	5,851 18.3	31,985 100.0
Southern Plains (.13)	No. Pct	10,096 44.3	8,575 37.6	4,130 18.1	22,801 100.0
Total, 17 Western States (.02)	No. Pct	125,175 57.9	65,664 30.4	25,391 11.7	216,230 100.0
FL-AR-LA (.05)	No. Pct	11,113 53.2	6,349 30.4	3,410 16.3	20,872 100.0
Total, 20 princi- pal irrigation States (.01)	No. Pct	136,288 57.5	72,013 30.4	28,801 12.1	237,102 100.0
All Other States (.07)	No. Pct	20,168 49.7	15,479 38.1	4,964 12.2	40,611 100.0
United States 2/	No. Pct	156,456 56.3	87,492 31.5	33,765 12.2	277,713 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions.

2/ United States has no coefficient value because regional coefficients are based on U.S. data distributions.

(table 10). Regional distributions of agricultural product sales were similar to that for the United States.

Distributions of agricultural product sales by farm size differed from distributions of the number of irrigated farms in the United States. The U.S. distributions indicate that while farms with fewer than 50 acres accounted for 36 percent of irrigated farms, they accounted for only 7 percent of agricultural product sales and 2 percent of irrigated acres. Distributions of sales and of farms were most different in the Pacific region, where 3.5 percent of irrigated farms with 2,000 or more acres accounted for more than 29 percent of agricultural product sales.

Market Value of Agricultural Products Sold

Distributions of the number of irrigated farms, irrigated acres, and value of agricultural products sold from irrigated farms are presented by the market value of agricultural products sold.

Table 8—Distribution of the number of irrigated farms by farm size and by region

Region and coefficient value ^{1/}	Unit	Farm acres						All irrigated farms	
		1 to 49	50 to 99	100 to 219	220 to 499	500 to 999	1,000 to 1,999		2,000 or more
Pacific (.27)	Number Percent	51,455 57.3	10,486 11.7	10,143 11.3	7,806 8.7	4,246 4.7	2,619 2.9	3,119 3.5	89,874 100.0
Mountain (.10)	No. Pct	21,698 30.3	8,059 11.3	10,858 15.2	10,912 15.2	7,135 10.0	5,037 7.0	7,871 11.0	71,570 100.0
Northern Plains (.50)	No. Pct	961 3.0	934 2.9	3,199 10.0	8,151 25.5	8,261 25.8	6,022 18.8	4,457 13.9	31,985 100.0
Southern Plains (.24)	No. Pct	5,033 22.1	1,463 6.4	2,260 9.9	3,750 16.4	4,417 19.4	3,442 15.1	2,436 10.7	22,801 100.0
Total, 17 Western States (.02)	No. Pct	79,147 36.6	20,942 9.7	26,460 12.2	30,619 14.2	24,059 11.1	17,120 7.9	17,883 8.3	216,230 100.0
FL-AR-LA (.08)	No. Pct	7,119 34.1	1,841 8.8	2,327 11.1	3,135 15.0	3,211 15.4	2,075 9.9	1,164 5.6	20,872 100.0
Total, 20 princi- pal irrigation States (.02)	No. Pct	86,266 36.4	22,783 9.6	28,787 12.1	33,754 14.2	27,270 11.5	19,195 8.1	19,047 8.0	237,102 100.0
All Other States (.10)	No. Pct	13,982 34.4	4,612 11.4	6,574 16.2	6,799 16.7	4,745 11.7	2,710 6.7	1,189 2.9	40,611 100.0
United States ^{2/}	No. Pct	100,248 36.1	27,395 9.9	35,361 12.7	40,553 14.6	32,015 11.5	21,905 7.9	20,236 7.3	277,713 100.0

^{1/} Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions.

^{2/} United States has no coefficient value because regional coefficients are based on U.S. data distributions.

Number of Irrigated Farms. The market value of agricultural products sold was below \$10,000 for more than 34 percent of U.S. irrigated farms (table 11). The tendency for the greatest number of farms to be distributed in smaller sales classes was true for all regions except the Northern Plains, where 64 percent of irrigated farms generated between \$40,000 and \$249,999 in sales.

Irrigated Acres. Farms in the larger sales classes accounted for most of the irrigated acreage in the United States (table 12). Approximately 29 percent of U.S. irrigated acres were on farms generating more than \$500,000 of agricultural product sales. Distributions of irrigated acres by sales class for individual regions deviated slightly from that for the United States. In the Pacific region, for example, almost half of irrigated acres were in farms with more than \$500,000 of agricultural product sales. But the largest share of irrigated acres in the Northern and Southern Plains and the Mountain regions were in farms with \$100,000-\$249,999 in agricultural product sales.

Table 9—Distribution of irrigated acres by farm size and by region

Region and coefficient values ^{1/}	Unit	Farm acres							Total irrigated acres
		1 to 49	50 to 99	100 to 219	220 to 499	500 to 999	1,000 to 1,999	2,000 or more	
Pacific (.14, .76)	Acres Percent	601,108 5.1	506,653 4.3	978,461 8.2	1,622,744 13.7	1,712,447 14.4	1,835,910 15.5	4,613,132 38.9	11,870,455 100.0
Mountain (.08, .57)	Acres Pct	295,248 2.1	383,313 2.8	1,039,853 7.5	2,142,273 15.5	2,332,393 16.9	2,223,038 16.1	5,372,015 39.0	13,788,133 100.0
Northern Plains (.15, .32)	Acres Pct	12,494 .1	45,991 .5	315,812 3.4	1,447,013 15.7	2,283,707 24.7	2,424,327 26.2	2,711,117 29.3	9,240,461 100.0
Southern Plains (.15, .54)	Acres Pct	50,762 .8	46,257 .8	156,331 2.6	582,856 9.6	1,336,669 22.1	1,693,815 27.9	2,194,482 36.2	6,061,172 100.0
Total, 17 Western States (.01, .62)	Acres Pct	959,612 2.3	982,214 2.4	2,490,457 6.1	5,794,886 14.1	7,665,216 18.7	8,177,090 20.0	14,890,746 36.4	40,960,221 100.0
FL-AR-LA (.09, .66)	Acres Pct	63,363 1.5	64,456 1.5	160,724 3.8	471,578 11.0	926,109 21.7	1,027,710 24.0	1,562,192 36.5	4,276,132 100.0
Total, 20 principal irrigation States (.01, .62)	Acres Pct	1,022,975 2.3	1,046,670 2.3	2,651,181 5.9	6,266,464 13.9	8,591,325 19.0	9,204,800 20.3	16,452,938 36.4	45,236,353 100.0
All Other States (.11, .68)	Acres Pct	65,737 1.9	70,875 2.1	203,549 6.0	531,768 15.6	804,470 23.6	839,863 24.6	895,114 26.2	3,411,376 100.0
United States (<u>2/</u> , .63)	Acres Pct	1,088,712 2.2	1,117,545 2.3	2,854,730 5.9	6,798,232 14.0	9,395,795 19.3	10,044,663 20.6	17,348,052 35.7	48,647,729 100.0

^{1/} Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distribution of irrigated acres and number of farms.

^{2/} United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

The distribution of irrigated acres among sales classes for the United States and for the regions deviated considerably from the distribution of the number of farms. For example, small farms with less than \$10,000 in agricultural product sales accounted for 34 percent of U.S. irrigated farms but only 4 percent of U.S. irrigated acres. In the Pacific region, irrigated farms with less than \$10,000 in agricultural product sales accounted for 46 percent of irrigated farms but only 5 percent of irrigated acres. Farms in higher sales classes accounting for disproportionately large shares of irrigated acres compared with the number of farms implies concentration of irrigated acres in the higher sales classes.

Value of Agricultural Products Sold. More than half of the agricultural products sold from U.S. irrigated farms originated from farms with more than \$500,000 in sales (table 13). Farms in the low sales classes accounted for a very small share of total agricultural product sales.

Table 10—Distribution of sales from irrigated farms by farm size and by region

Region and coefficient values <u>1/</u>	Unit	Farm acres							Total sales from irri- gated farms
		1 to 49	50 to 99	100 to 219	220 to 499	500 to 999	1,000 to 1,999	2,000 or more	
Pacific (.14, .65)	\$1,000 Percent	1,332,284 10.1	929,515 7.0	1,524,033 11.6	1,983,112 15.0	1,819,990 13.8	1,716,349 13.0	3,884,405 29.5	13,189,687 100.0
Mountain (.10, .55)	\$1,000 Pct	243,425 3.7	210,827 3.2	513,257 7.7	1,025,966 15.5	1,097,199 16.5	1,027,768 15.5	2,515,354 37.9	6,633,794 100.0
Northern Plains (.21, .35)	\$1,000 Pct	25,077 .4	54,953 .9	190,023 3.0	960,469 15.0	1,286,011 20.1	1,688,985 26.4	2,189,195 34.2	6,394,711 100.0
Southern Plains (.20, .53)	\$1,000 Pct	93,495 2.9	46,363 1.4	98,475 3.0	293,155 9.0	579,374 17.7	810,702 24.8	1,349,340 41.3	3,270,905 100.0
Total, 17 Western States (.02, .54)	\$1,000 Pct	1,694,281 5.7	1,241,658 4.2	2,325,788 7.9	4,262,702 14.5	4,782,574 16.2	5,243,804 17.8	9,938,294 33.7	29,489,097 100.0
FL-AR-LA (.08, .55)	\$1,000 Pct	306,118 7.7	148,363 3.7	251,108 6.3	394,297 10.0	655,035 16.5	748,435 18.9	1,457,328 36.8	3,960,685 100.0
Total, 20 princi- pal irrigation States (.02, .54)	\$1,000 Pct	2,000,399 6.0	1,390,021 4.2	2,576,896 7.7	4,656,999 13.9	5,437,609 16.3	5,992,239 17.9	11,395,622 34.1	33,449,782 100.0
All Other States (.14, .53)	\$1,000 Pct	796,297 13.0	287,846 4.7	562,474 9.2	899,300 14.7	1,118,845 18.3	1,071,403 17.5	1,373,144 22.5	6,109,307 100.0
United States (.2, .53)	\$1,000 Pct	2,796,696 7.1	1,677,866 4.2	3,139,370 7.9	5,556,298 14.0	6,556,455 16.6	7,063,642 17.9	12,768,765 32.3	39,559,091 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distribution of sales from irrigated farms and the number of farms.

2/ United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

For the most part, distributions of the number of farms among sales value classes differed greatly from distributions of sales. National distributions indicate that the 5 percent of irrigated farms with sales above \$500,000 accounted for 55 percent of total sales from irrigated farms. Among the regions, the small percentage of farms in the more than \$500,000 sales class accounted for a larger share of total sales. The tendency toward concentration was greatest in the Pacific region, where 6 percent of farms in the largest sales class accounted for 66 percent of the region's total sales.

Principal Source of Irrigation Water

This section presents the number of irrigated farms, irrigated acres, and the sales value from irrigated farms, categorized by principal source of irrigation water, or the source from which the largest percentage of irrigation water was obtained.

Table 11—Distribution of irrigated farms by sales value and by region

Region and coefficient value ^{1/}	Unit	Market value of agricultural products sold							All irrigated farms
		Less than \$10,000	\$10,000 to \$19,999	\$20,000 to \$39,999	\$40,000 to \$99,999	\$100,000 to \$249,999	\$250,000 to \$499,999	More than \$500,000	
Pacific (.14)	Number Percent	40,992 45.6	8,774 9.8	8,979 10.0	11,759 13.1	9,709 10.8	4,819 5.4	5,127 5.7	89,874 100.0
Mountain (.13)	No. Pct	30,697 42.9	7,851 11.0	8,334 11.6	11,708 16.4	8,161 11.4	2,964 4.1	2,067 2.9	71,570 100.0
Northern Plains (.41)	No. Pct	1,444 4.5	1,616 5.1	3,999 12.5	10,407 32.5	9,974 31.2	3,027 9.5	1,523 4.8	31,985 100.0
Southern Plains (.07)	No. Pct	6,579 28.9	2,055 9.0	2,789 12.2	4,907 21.5	3,977 17.4	1,607 7.0	933 4.1	22,801 100.0
Total, 17 Western States (.03)	No. Pct	79,712 36.9	20,296 9.4	24,101 11.1	38,781 17.9	31,821 14.7	12,417 5.7	9,650 4.5	216,230 100.0
FL-AR-LA (.13)	No. Pct	5,069 24.3	1,828 8.8	2,383 11.4	4,117 19.7	4,247 20.3	1,908 9.1	1,389 6.7	20,872 100.0
Total, 20 principal irrigation States (.01)	No. Pct	84,781 35.8	22,124 9.3	26,484 11.2	42,898 18.1	36,068 15.2	14,325 6.0	11,039 4.7	237,102 100.0
All Other States (.11)	No. Pct	10,246 25.2	3,993 9.8	4,894 12.1	7,844 19.3	7,807 19.2	3,708 9.1	2,228 5.5	40,611 100.0
United States ^{2/}	No. Pct	95,027 34.2	26,117 9.4	31,378 11.3	50,742 18.3	43,875 15.8	18,033 6.5	13,267 4.8	277,713 100.0

^{1/} Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions.

^{2/} United States has no coefficient value because regional coefficients are based on U.S. data distributions.

Number of Irrigated Farms

For more than 44 percent of irrigated farms, including farms in the Plains and the Florida-Arkansas-Louisiana regions, onfarm wells were the largest source of irrigation water (table 14). Off-farm surface supplies were the principal irrigation water source in the Pacific and Mountain regions. Irrigated farms in the All Other States region obtained the largest percentage of irrigation water from onfarm surface supplies such as ponds or streams.

Irrigated Acres

Farms that obtained the largest percentage of irrigation water from onfarm wells accounted for 55 percent of U.S. irrigated acres (table 15). Distributions of irrigated acres among principal irrigation water sources in the Northern and Southern Plains and the All Other States regions deviated

Table 12—Distribution of irrigated acres by sales value and by region

Region and coefficient values ^{1/}	Unit	Market value of agricultural products sold							Total irrigated acres
		Less than \$10,000	\$10,000 to \$19,999	\$20,000 to \$39,999	\$40,000 to \$99,999	\$100,000 to \$249,999	\$250,000 to \$499,999	More than \$500,000	
Pacific (.23, .71)	Acres	537,831	283,297	488,413	1,150,147	1,926,871	1,748,255	5,737,820	11,870,455
	Percent	4.5	2.4	4.1	9.7	16.2	14.7	48.3	100.0
Mountain (.16, .58)	Acres	960,282	687,702	1,206,287	2,813,310	3,248,474	1,954,335	2,923,040	13,788,133
	Pct	7.0	5.0	8.7	20.4	23.6	14.2	21.2	100.0
Northern Plains (.21, .38)	Acres	45,438	115,497	410,799	1,863,520	3,317,569	1,855,719	1,631,955	9,240,461
	Pct	.5	1.2	4.4	20.2	35.9	20.1	17.7	100.0
Southern Plains (.11, .56)	Acres	135,969	131,417	344,244	1,174,928	1,755,457	1,224,718	1,294,969	6,061,172
	Pct	2.2	2.2	5.7	19.4	29.0	20.2	21.4	100.0
Total, 17 Western States (.02, .60)	Acres	1,679,520	1,217,913	2,449,743	7,001,905	10,248,371	6,783,027	11,587,784	40,960,221
	Pct	4.1	3.0	6.0	17.1	25.0	16.6	28.3	100.0
FL-AR-LA (.14, .61)	Acres	61,659	49,386	133,344	491,481	1,104,744	881,310	1,554,785	4,276,132
	Pct	1.4	1.2	3.1	11.5	25.8	20.6	36.4	100.0
Total, 20 principal irrigation States (.01, .60)	Acres	1,741,179	1,267,299	2,583,087	7,493,386	11,353,115	7,664,337	13,142,569	45,236,353
	Pct	3.8	2.8	5.7	16.6	25.1	16.9	29.1	100.0
All Other States (.13, .61)	Acres	55,140	49,109	115,259	421,062	903,820	804,645	1,062,746	3,411,376
	Pct	1.6	1.4	3.4	12.3	26.5	23.6	31.2	100.0
United States (^{2/} , .59)	Acres	1,796,319	1,316,408	2,698,346	7,914,448	12,256,935	8,468,982	14,205,315	48,647,729
	Pct	3.7	2.7	5.5	16.3	25.2	17.4	29.2	100.0

^{1/} Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distributions of irrigated acres and farms.

^{2/} United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

from the U.S. distribution. In the Northern and Southern Plains regions, 89 percent and 80 percent of the irrigated acres used onfarm wells as the principal irrigation water source. A larger percentage of irrigated acres in the All Other States region used onfarm surface supplies as the principal irrigation water source.

Irrigated acres were distributed similarly to the number of irrigated farms in all regions except the All Other States region. Although farms obtaining water primarily from onfarm surface supplies accounted for a majority of the irrigated farms in the All Other States region, these farms accounted for only 26 percent of this region's irrigated acres when compared with the number of farms.

Value of Agricultural Products Sold

Farms that used onfarm wells as the principal source of irrigation water generated the majority of agricultural product sales (table 16). Regional

Table 13—Distribution of agricultural product sales from irrigated farms by sales value and by region

Region and coefficient values 1/	Unit	Market value of agricultural products sold							Total sales from irrigated farms
		Less than \$10,000	\$10,000 to \$19,999	\$20,000 to \$39,999	\$40,000 to \$99,999	\$100,000 to \$249,999	\$250,000 to \$499,999	More than \$500,000	
Pacific (.13, .83)	\$1,000 Percent	117,255 0.9	125,050 0.9	255,522 1.9	758,645 5.8	1,532,011 11.6	1,681,235 12.7	8,720,683 66.1	13,189,687 100.0
Mountain (.09, .79)	\$1,000 Pct	97,537 1.5	112,146 1.7	240,714 3.6	762,665 11.5	1,269,590 19.1	1,016,774 15.3	3,134,902 47.3	6,633,794 100.0
Northern Plains (.12, .63)	\$1,000 Pct	6,759 .1	24,426 .4	120,420 1.9	703,641 11.0	1,539,910 24.1	1,025,529 16.0	2,974,038 46.5	6,394,711 100.0
Southern Plains (.05, .75)	\$1,000 Pct	20,374 .6	29,829 .9	81,620 2.5	323,173 9.9	623,487 19.1	550,725 16.8	1,641,812 50.2	3,270,905 100.0
Total, 17 Western States (.02, .79)	\$1,000 Pct	241,925 .8	291,451 1.0	698,276 2.4	2,548,124 8.6	4,964,998 16.8	4,274,263 14.5	16,471,435 55.9	29,489,097 100.0
FL-AR-LA (.04, .74)	\$1,000 Pct	17,358 .4	26,097 .7	68,902 1.7	272,965 6.9	674,381 17.0	651,717 16.5	2,249,440 56.8	3,960,685 100.0
Total, 20 principal irrigation States (.02, .79)	\$1,000 Pct	259,283 .8	317,548 .9	767,178 2.3	2,821,089 8.4	5,639,379 16.9	4,925,980 14.7	18,720,875 56.0	33,449,782 100.0
All Other States (.10, .71)	\$5,000 Pct	39,291 .6	57,149 .9	140,279 2.3	519,488 8.5	1,236,756 20.2	1,273,524 20.8	2,843,092 46.5	6,109,307 100.0
United States (2/, .77)	\$1,000 Pct	298,572 .8	374,695 .9	907,456 2.3	3,340,578 8.4	6,876,135 17.4	6,199,504 15.7	21,563,966 54.5	39,559,091 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distributions of sales value from irrigated farms and the number of farms.

2/ United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

distributions, except those in the Northern Plains and All Other States, were similar to the U.S. distribution of agricultural product sales value. In the Northern Plains, a much greater percentage of agricultural product sales was generated by farms that used onfarm wells as the principal irrigation water source. The All Other States region differed in that a considerable percentage (41 percent) of sales was generated by farms using onfarm surface

Table 14--Distribution of irrigated farms by principal source of irrigation water and by region

Region and coefficient value <u>1/</u>	Unit	Principal source of irrigation water			All farms
		Onfarm wells	Onfarm surface supply	Off-farm surface supply	
Pacific (.15)	Number Percent	33,542 37.3	9,652 10.7	46,680 51.9	89,874 100.0
Mountain (.31)	No. Pct	13,886 19.4	9,460 13.2	48,224 67.4	71,570 100.0
Northern Plains (.39)	No. Pct	26,666 83.4	1,861 5.8	3,458 10.8	31,985 100.0
Southern Plains (.23)	No. Pct	15,444 67.7	2,199 9.6	5,158 22.6	22,801 100.0
Total, 17 Western States (.11)	No. Pct	89,538 41.4	23,172 10.7	103,520 47.9	216,230 100.0
FL-AR-LA (.41)	No. Pct	16,748 80.2	3,030 14.5	1,094 5.2	20,872 100.0
Total, 20 principal irrigation States (.08)	No. Pct	106,286 44.8	26,202 11.1	104,614 44.1	237,102 100.0
All Other States (.46)	No. Pct	16,906 41.6	20,350 50.1	3,355 8.3	40,611 100.0
United States <u>2/</u>	No. Pct	123,192 44.4	46,552 16.8	107,969 38.9	277,713 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions.

2/ United States has no coefficient value because regional coefficients are based on U.S. data distributions.

supplies as the principal irrigation water source. Distributions of sales among principal irrigation water sources deviated only slightly from distributions of farms in the regions and the United States.

Table 15--Distribution of irrigated acres by principal source of irrigation water and by region

Region and coefficient values <u>1/</u>	Unit	Principal source of irrigation water			Total irrigated acres
		Onfarm wells	Onfarm surface supply	Off-farm surface supply	
Pacific (.24, .04)	Acres Percent	4,012,690 33.8	1,381,807 11.6	6,475,958 54.6	11,870,455 100.0
Mountain (.25, .17)	Acres Pct	4,263,896 30.9	2,486,709 18.0	7,037,528 51.0	13,788,133 100.0
Northern Plains (.34, .06)	Acres Pct	8,234,161 89.1	288,957 3.1	717,343 7.8	9,240,461 100.0
Southern Plains (.26, .13)	Acres Pct	4,875,742 80.4	281,538 4.6	903,892 14.9	6,061,172 100.0
Total, 17 Western States (.05, .12)	Acres Pct	21,386,489 52.2	4,439,011 10.8	15,134,721 36.9	40,960,221 100.0
FL-AR-LA (.22, .07)	Acres Pct	3,163,496 74.0	589,571 13.8	523,065 12.2	4,276,132 100.0
Total, 20 principal irrigation States (.03, .11)	Acres Pct	24,549,985 54.3	5,028,582 11.1	15,657,786 34.6	45,236,353 100.0
All Other States (.35, .28)	Acres Pct	2,373,101 69.6	901,224 26.4	137,051 4.0	3,411,376 100.0
United States (<u>2/</u> , .12)	Acres Pct	26,923,086 55.3	5,929,806 12.2	15,794,837 32.5	48,647,729 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distribution of irrigated acres and farms.

2/ United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

Table 16--Distribution of sales from irrigated farms by principal source of irrigation water and by region

Region and coefficient values 1/	Unit	Principal source of irrigation water			Total sales from irrigated farms
		Onfarm wells	Onfarm surface supply	Off-farm surface supply	
Pacific (.21, .04)	\$1,000 Percent	5,403,796 41.0	1,144,841 8.7	6,641,050 50.4	13,189,687 100.0
Mountain (.22, .18)	\$1,000 Pct	2,397,010 36.1	813,407 12.3	3,423,377 51.6	6,633,794 100.0
Northern Plains (.32, .02)	\$1,000 Pct	5,473,435 85.6	380,827 6.0	540,450 8.5	6,394,711 100.0
Southern Plains (.14, .05)	\$1,000 Pct	2,218,335 67.8	409,308 12.5	643,263 19.7	3,270,905 100.0
Total, 17 Western States (.10, .12)	\$1,000 Pct	15,492,576 52.5	2,748,383 9.3	11,248,140 38.1	29,489,099 100.0
FL-AR-LA (.21, .09)	\$1,000 Pct	2,892,795 73.0	531,330 13.4	536,560 13.5	3,960,685 100.0
Total, 20 principal irrigation States (.07, .11)	\$1,000 Pct	18,385,371 55.0	3,279,713 9.8	11,784,700 35.2	33,449,784 100.0
All Other States (.38, .10)	\$1,000 Pct	3,139,700 51.4	2,483,220 40.6	486,387 8.0	6,109,307 100.0
United States (2/, .10)	\$1,000 Pct	21,525,071 54.4	5,762,932 14.6	12,271,087 31.0	39,559,091 100.0

1/ Coefficient values in parentheses measure the deviation between the regional and the U.S. distributions, and the deviation between the distribution of sales from irrigated farms and the number of farms.

2/ United States does not have the first coefficient value because regional coefficients are based on U.S. data distributions.

OPERATORS OF IRRIGATED FARMS

The distributions of certain characteristics describe operators of U.S. irrigated farms. These characteristics include principal occupation, days of off-farm work, age of operator, place of residence, and years on present farm. Except where noted, regional distributions were similar to that of the United States.

Approximately 65 percent of operators of the Nation's irrigated farms indicated that farming was their principal occupation (table 17). Eighty-nine percent of operators of irrigated farms in the Northern Plains region indicated that farming was their principal occupation. In comparison, 45 percent of the operators of irrigated farms in the Pacific region indicated that their principal occupation was something other than farming.

A slight majority of the operators of irrigated farms reporting days of off-farm work indicated that they worked some days off the farm, while 49 percent indicated that they did not work any days off the farm (table 17). Distributions of off-farm work for the regions were virtually identical to the U.S. distribution, except in the Northern Plains, which deviated slightly. More operators in the Northern Plains did not work any days off the

Table 17--Personal characteristics of operators of U.S. irrigated farms

Characteristics	Operators of U.S. irrigated farms 1/	
	<u>Number</u>	<u>Percent</u>
Principal occupation:		
Farming	180,855	65.1
Other	96,858	34.9
Days of off-farm work:		
None	124,550	44.8
1 to 99	30,343	10.9
100 to 199	23,288	8.4
200 or more	76,322	27.5
Not reported	23,210	8.4
Age of operator:		
Younger than 25 years	5,527	2.0
25 to 34 years	35,843	12.9
35 to 44 years	58,085	20.9
45 to 54 years	68,002	24.5
55 to 64 years	69,478	25.0
65 years and older	40,778	14.7
Place of residence:		
Onfarm operated	194,441	70.0
Not onfarm operated	61,958	22.3
Not reported	21,314	7.7
Years on present farm:		
2 or less	17,055	6.1
3 or 4	27,455	9.9
5 to 9	53,857	19.4
10 or more	137,920	49.7
Not reported	41,426	14.9

1/ Regional distributions of irrigated farm operators excluded due to consistency with national data for irrigated farm operators.

farm, while fewer worked 200 or more days off the farm compared with the other regions and the United States.

A small percentage of operators of irrigated farms were younger than 35 years of age in 1982, while almost half were between the ages of 45 and 64 (table 17). When compared with the other regions and with the United States, the Northern Plains had a larger percentage of farm operators in the 25 to 34 age bracket and a smaller percentage of farm operators aged 65 years of age and older.

A majority of operators of irrigated farms resided on the farm they operated (table 17). In the Southern Plains and the Florida-Arkansas-Louisiana regions, larger percentages of operators of irrigated farms lived off the farm. More than half of them had been on their present farms 10 or more years (table 17).

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APPENDIX: COMPARISON OF TWO PERCENTAGE DISTRIBUTIONS USING THE COEFFICIENT ASSOCIATED WITH LOCALIZATION CURVES

Coefficients can be used to compare two percentage distributions.^{1/} Compare the percentage distribution of the number of farms among Standard Industrial Classification (SIC) groupings for the Pacific region (the relevant distribution) to a similarly constructed U.S. distribution (the base distribution) (appendix table 1). The procedure involves calculating the ratio of the relevant percentage to the base percentage for each grouping. The groupings are then ranked in descending order according to the value of the ratio, and plotted on a cumulative percentage basis (appendix table 2). A localization curve results (appendix figure 1). Deviation between the two distributions is reflected by movement of the localization curve above and to the left of the diagonal.

A single coefficient associated with the localization curve can more efficiently explain the graph. The deviation between the relevant and base distributions can be measured as a ratio of (1) the area between the localization curve and the diagonal to (2) the total area formed by the right triangle above and to the left of the diagonal. The ratio can be expressed as the following mathematical expression:

$$1 - \sum r_i(B_i + B_{i-1}),$$

where r is the relevant percentage divided by 100, B is the cumulative base percentage divided by 100, and i is the class ranked in descending order according to the ratio of relevant percentage to base percentage. The calculated coefficient value ranges from zero to one, where zero indicates no deviation and one indicates maximum deviation. The coefficient value calculated for the example presented is .34, and indicates that the distribution for the Pacific region deviated from that for the United States.

Appendix table 1—Percentage distributions of farms by Standard Industrial Classifications for the Pacific region and the United States

Region	Standard Industrial Classification							
	Cash grain	Field crop except cash grain	Vegetable including melon	Fruit and tree nut	Horticultural specialty	General farm primarily crop	Livestock	General farm primarily livestock
Pacific	5.9	9.2	4.5	43.9	4.2	2.6	29.3	0.4
U.S.	21.0	13.9	4.4	19.2	5.7	3.8	31.3	60.7
Ratio ^{1/}	.28	.66	1.02	2.29	.74	.68	.94	.57

^{1/} The ratio is equal to the percentage for the Pacific region (relevant) divided by the percentage for the United States (base).

Appendix table 2—Percentage distributions after ranking

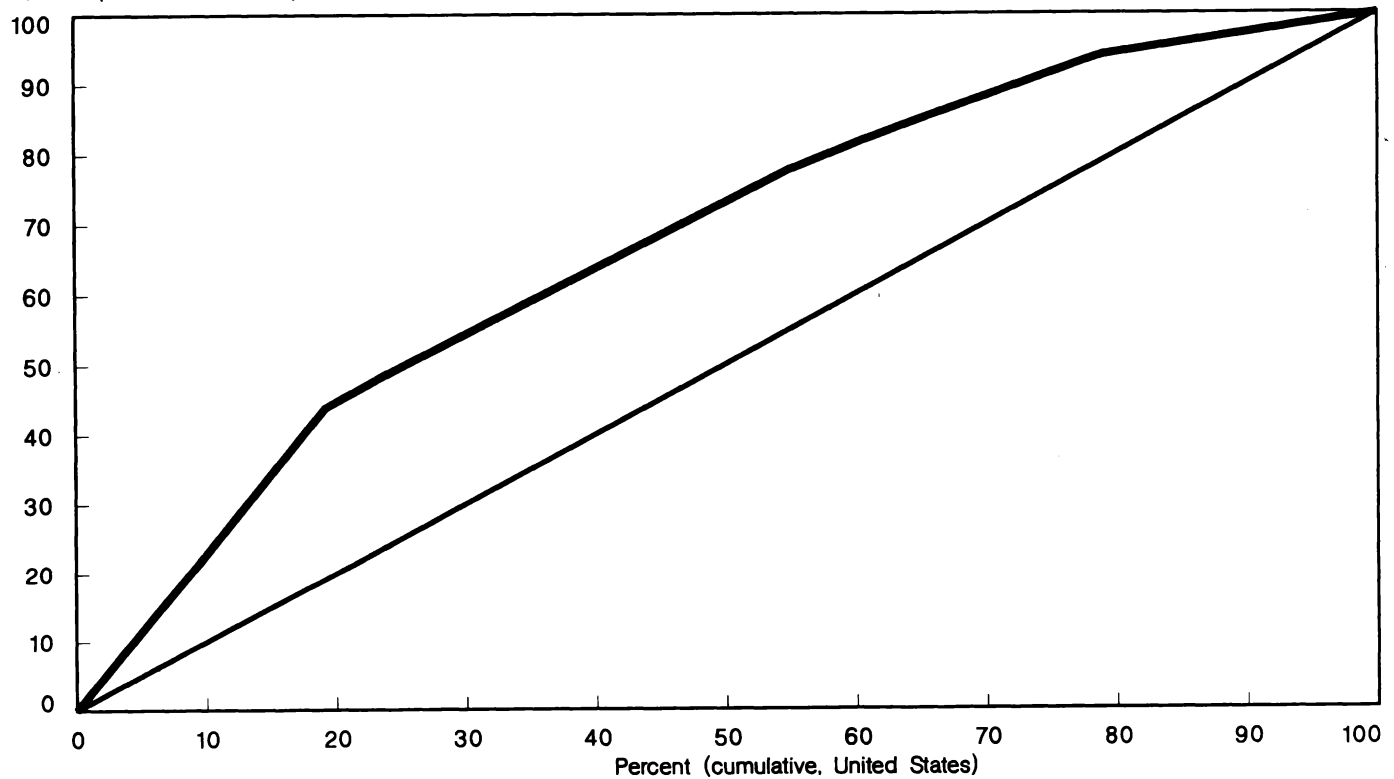
Region	Standard Industrial Classification							
	Fruit and tree nut	Vegetable including melon	Livestock	Horticultural specialty	General farm primarily crop	Field crop except cash grain	General farm primarily livestock	Cash grain
Pacific								
Percent	43.90	4.50	29.30	4.20	2.60	9.20	0.40	5.90
Cumulative percent	43.90	48.40	77.70	81.90	84.50	93.70	94.10	100.00
U.S.								
Percent	19.20	4.40	31.30	5.70	3.80	13.90	.70	21.00
Cumulative percent	19.20	23.60	54.90	60.60	64.40	78.30	79.00	100.00
Ratio 1/	2.29	1.02	.94	.74	.68	.66	.57	.28

1/ The ratio is equal to the percentage for the Pacific region (relevant) divided by the percentage for the United States (base).

Appendix figure 1

Localization curve

Percent (cumulative, Pacific)



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